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(54) Title: SEISMIC EXPLORATION

(57) **Abstract:** An instrument for studying an object (12) comprising a movable interferometer having a laser source and a plurality of detectors (24) arranged in an array. The laser source is expanded and arranged to direct a converging object beam (21) towards a point (22) or line beyond the object (12) whereby a speckle pattern of light reflected from the object (12) is detected by the detector or detector array (24). The point (12) or line at which the laser source is arranged to converge the object beam (21) is approximately the same distance beyond the object (12) as the object is spaced from the source. The speed of movement of the instrument, the sampling rate of the detectors (24) and size of the area (23) of the object illuminated by the converging laser object beam (21) are arranged so that sequential areas (23) of the object (12) studied overlap.

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